What Is Claimed Is:

1. A concrete cask comprising:

an inner shell made from metal;

an outer shell made from metal;

a shielding body composed of concrete and provided between said inner shell and said outer shell;

heat transfer fins provided between said inner shell and said outer shell; and

an accommodation portion formed inside said inner shell for accommodating a radioactive substance, wherein

a containment structure is employed to shield said accommodation portion from the outside of the cask, and

said heat transfer fins each has an inner shell-side and an outer shell-side and is configured such that said inner shell-side is in contact with the inner shell and the outer shell-side is formed with at least a portion that is not in contact with the outer shell; or

such that said outer shell-side is in contact with the outer shell and the inner shell-side is formed with at least a portion that is not in contact with the inner shell.

2. The concrete cask according to claim 1, comprising at least a first heat transfer fin provided in contact with said outer shell and a second heat transfer fin provided in contact with said inner shell, the first

heat transfer fin and the second heat transfer fin being provided so as to overlap each other and so that there is a clearance between said first and said second heat transfer fins in said overlap portion.

3. The concrete cask according to claim 2, wherein when the length of the overlap portion of said first and said second heat transfer fins is denoted by w1 and the clearance between said first and said second heat transfer fins in the overlap portion is denoted by a1, then the following relation is satisfied:

$a1 \leqq (2 \cdot \lambda c \cdot w1 \cdot Lc)/(\lambda f \cdot t)$,

where

λc: thermal conductivity of the concrete (W/m · K);

Lc: thickness of the concrete shielding body (m);

λf: thermal conductivity of the heat transfer fins (W/m · K);

t: thickness of the heat transfer fins (m).

4. The concrete cask according to claim 1, wherein the side of said heat transfer fins that forms said separation portion is formed to have substantially an L-like shape so as to be provided with an opposite surface facing said inner shell or said outer shell.

5. The concrete cask according to claim 4, wherein if the separation clearance of said separation portion is denoted by a2, the following relationship is satisfied:

$$a2 \leqq (2 \cdot \lambda c \cdot w2 \cdot Lc)/(\lambda f \cdot t),$$

where

λc: thermal conductivity of the concrete (W/m · K);

Lc: thickness of the concrete shielding body (m);

λf: thermal conductivity of the heat transfer fins (W/m · K);

t: thickness of the heat transfer fins (m);

w2: length of said opposite surface in the width direction (m).

6. The concrete cask according to claim 1, wherein said heat transfer fins are formed to have substantially an I-like shape, when viewed from the shell end.

7. The concrete cask according to any of claims 1 to 6, wherein said separation portion is composed so as to separate completely the heat transfer fins and the inner shell or outer shell.

8. The concrete cask according to claim 1, wherein said heat transfer fins are disposed at an angle to the radial direction of said shielding body.

9. The concrete cask according to claim 1, wherein openings are formed in said heat transfer fins.

10. A concrete cask comprising:

an inner shell made from metal;

an outer shell made from metal;

a shielding body composed of concrete and provided between said inner shell and said outer shell; and

an accommodation portion for accommodating a radioactive substance inside said inner shell, wherein

a containment structure is employed to shield said accommodation portion from the outside of the cask, and

said shielding body is composed of concrete including a metal material that has a high thermal conductivity.

11. The concrete cask according to claim 10, wherein the thermal conductivity of the shielding body is 4 (W/m·K) or more.

12. The concrete cask according to claim 1, wherein said shielding body comprises a metal material in at least one shape of grains, particles, or fibers.

13. The concrete cask according to claim 10, wherein said shielding body comprises a metal material in at least one shape of grains, particles, or fibers.

14. The concrete cask according to claim 1 , wherein said shielding body contains 15 mass% or more of hydroxide retaining water as crystals with a melting point and decomposition temperature higher than 100°C.

15. The concrete cask according to claim 10, wherein said shielding body contains 15 mass% or more of hydroxide retaining water as crystals with a melting point and decomposition temperature higher than 100°C.

16. The concrete cask according to claim 15, wherein said hydroxide shows poor solubility or insolubility in water.

17. The concrete cask according to claim 1, wherein said shielding body is sealed so as to be shielded from outside air.

18. The concrete cask according to claim 10, wherein said shielding body is sealed so as to be shielded from outside air.

19. A method for manufacturing the concrete cask of claim 1, comprising the step of:

a mixing step for mixing a shielding body material that forms said shielding body and

a placing step for placing the mixed shielding body materials, wherein said shielding body material is vacuum degassed in at least one of the steps.

20. The method for manufacturing the concrete cask according to claim 19, wherein in said mixing step, the shielding body material is vacuum degassed by mixing the shielding body material in a mixing chamber of a mixing

machine and degassing the inside of said mixing chamber with a vacuum pump.

21. The method for manufacturing the concrete cask according to claim 19, wherein in said placing step, the shielding body material is vacuum degassed by placing the shielding body material mixed in said mixing step into a space formed between said inner shell and said outer shell and degassing the space with a vacuum pump.

22. The method for manufacturing the concrete cask according to claim 20, wherein in said placing step, the shielding body material is vacuum degassed by placing the shielding body material mixed in said mixing step into a space formed between said inner shell and said outer shell and degassing the space with a vacuum pump.